

MISCELLANEOUS NOTES

I.—THE NUMBER OF TIGERS SHOT IN RESERVED FOREST IN INDIA AND BURMA DURING THE YEAR 1937-1938.

A question was recently raised by the editors of the *Encyclopædia Britannica* as to the number of Tigers shot annually in India and Burma. No recent records covering the whole area were available. The information published below was kindly supplied to the Society by the Chief Conservators of Forests with the various Provincial Governments and States and by the Game Warden, Burma. The data made available give the number of tigers shot by licence-holders in forests under the control of the Forest Department. It is compiled from the returns which the licence-holder is required to submit indicating the species and number of animals shot. The extent of demarcated forests in the various provinces is given. It should however be indicated that forests under Government control include forests where no tigers are found, or from which tigers have been long since exterminated. Statistics were not available from all the Indian States, but the list includes data from the major Indian States where tigers occur.

Number of tigers shot by licence-holders in Government-controlled forests in the British Provinces and Indian States in India during the year 1937-1938:—

<i>Province or State.</i>	<i>Area of controlled forest in square miles.</i>	<i>No. of Tigers Shot.</i>
Assam	...	18
Bengal	...	51
Behar	...	10
United Provinces	...	116
Cooch Behar	...	2
Indore	...	14
Gwalior	...	11
Rewa	...	39
Surguja	...	18
Orissa	...	19
Central Provinces and Berar	...	112
Bombay	...	34
Hyderabad State	...	18
Madras	...	19
Mysore	...	54
Nilgiris	...	5
TOTAL ...		540

The figures given show the number of tigers actually shot in the reserved forests of India and Burma during the year 1937-1938. It should however be indicated that a fair number of tigers are also shot at and wounded and not recovered. The total casualties from shooting should therefore be taken at about 20% in excess of the recorded figures, because quite a number of tigers must die subsequently from bullet wounds. On this basis the total number killed might be estimated at approximately 650.

Tigers shot in areas outside control of the Forest Department.

Except from the province of Madras, no figures have been made available of the number of tigers shot outside demarcated forests. For the Province of Madras, Mr. C. C. Wilson, the Chief Conservator, very kindly obtained figures separately from the Revenue Department. For the year 1937-1938, they are as follows:—

Malabar	S. Kanara	Coimbatore	Bellary	E. Godavery	Total
37	7	1	1	5	51

The remaining districts of the province report *nil*.

It will be noted that the number of tigers shot in Malabar, i.e. 37, exceeds those for the whole of the Presidency. Mr. Wilson expresses doubt as to the correctness of the figure and believes that the number has been enhanced by the inclusion of panthers.

The data supplied give a total of 51 tigers killed during the year in the Province of Madras in forests outside the control of the Forest Department, as compared with 24 within controlled forests, inclusive of the Nilgiris. How far these comparative figures reflect the position in other provinces in India, one is unable to say. As regards the United Provinces, Mr. F. W. Champion writes: 'a limited number of tigers occur outside reserved forests and it is probable that an average of about 25 tigers are shot in areas outside the control of the Forest Department.' In Assam, the Conservator of Forests considers that the number of tigers shot outside reserved forests is certainly not less than within these forests. The number of tigers killed outside reserved forests would obviously add considerably to the total destroyed in reserved forests; but the figures made available provide reasonably accurate information as to the number of tigers shot within reserved forests, which in their extent cover about 1/3 of British India, and give interesting data for analysis.

Tigers shot in Controlled Forests.

Northern India.—Out of a total of 540 tigers accounted for in reserved forests in India, 197 were shot in the United Provinces, Bengal, Bihar and Assam. These Provinces together contain roughly 18,900 square miles of controlled forests in the greater part of which tigers are found. Out of the 197 reported killed, 116—by far the largest number—were killed in the United Provinces, which has about the same extent of controlled forest as Bengal or Assam, i.e. roughly 6,000 square miles, and in which, apparently, a larger

number of tigers were slain than in any other province in India; including the Central Provinces, which come next and which, inclusive of Berar, has reserved forests covering some 19,000 square miles.

Mr. E. A. Smythies, Chief Conservator of Forests, U. P., has also given data covering the number of tigers shot annually over a period of 10 years. Between 1929 and 1939, 1,074 tigers were killed in the reserved forests of the United Provinces; the average number per year being 107.4. Since July 1931, except in the case of man-eaters, the payment of rewards by District Officers for the destruction of tigers in the U. P. has been stopped. The Chief Conservator of Forests adds that the discontinuance of the reward has had no effect on the number of tigers killed.

Despite the large number of tigers killed annually in the United Provinces Government Forests, the Chief Conservator of Forests considers that 'they are not being reduced in numbers, and in the vicinity of the Hailey National Park, tigers appear to have increased. Writing on this point Mr. F. W. Champion, Deputy Conservator of Forests says—'Considerable numbers are bred every year in the United Provinces forests, particularly in the Western Circle, whereas there is a tendency for Nepal tigers to migrate into the better stocked and fire protected forests of the Eastern Circle, which in Oudh march with the plains forests of Nepal. The recently formed Hailey National Park is also breeding many tigers which spread out beyond the boundaries of the Park. Altogether the position as regards the stock of tigers in the United Provinces is quite satisfactory and there is no known man-eater at the present time.'

Out of the 57 tigers killed in Bengal in the year 1939, Mr. W. Meiklejohn, Senior Conservator of Forests reports that 31 were shot in the Sundarbans division, comprising the civil districts of the 24 Parganas and Khulna: 'In that division the tigers are man-eaters and must be kept down to permit of the extraction of forest produce. Shooting is therefore encouraged and generally a reward of Rs. 100 per tiger is paid and sometimes in special cases the amount is raised to Rs. 150.' In the Northern Bengal division, the shooting of tigers is controlled by three Shooting and Fishing Clubs: no rewards are paid and two tigers are allowed per each permit per annum.

Rewards are paid for the destruction of tigers in Assam and in Bihar. The number of tigers killed in reserved forests in Assam during 1937-1938 was 18. Figures are not available for previous years. Mr. G. H. L. Marshall, who keeps the Game Register for the Naga Hills district, recently published a note (*Jour. B.N.H.S.*, Vol. xl, p. 740) giving a total of 59 tigers shot in this district over a period of 10 years (1927-1939).

The number of tigers shot in Cooch Behar State in 1937-1938 is given as 2. Data regarding the number of tigers shot in this State over a period of 27 years (1880-1907) are provided from the diary of H. H. the Maharaja of Cooch Behar, which is incorporated in his book, *Thirty-seven Years of Big Game Shooting*,

1908. In 27 years the total number of tigers killed in the State was 295 :—90 between 1881-1890, 102 between 1891-1900, and 103 between 1901-1907. The average number per annum works out at 7'36: the highest number shot in any one year was 24 (1892) and the lowest 4. The last 7 years (1900-1907) showed the best average, which is 14'3.

Central India.

Coming to Central India, tiger shooting in most of the Central Indian States is a royal prerogative and therefore strictly controlled. In the 4 Central Indian States, i.e., Indore, Gwalior, Rewa and Surguja from which data were made available, 82 tigers were killed during the year 1937-1938. Some idea of the reduction in the number of tigers may be obtained from *Tiger Shooting in India*, written by Lt. William Rice, of the 25th Bombay Regiment, who in the year 1850 was stationed at Neemuch, Gwalior, C.I., where in the neighbouring jungles in one year he and his brother officers accounted for 98 tigers, killing 68 and wounding 30.

The most extensive area of controlled forests in India lie within the Central Provinces and Berar, where such forests cover 19,432 square miles. The total number of tigers killed within this area by licence-holders in 1937 was 112. No rewards are paid in the Province for shooting tigers except for the destruction of man-eaters and cattle-lifters. The number of tigers shot in 1929-1930 was 143, and in 1930-1931 was 118. After that year the number shot annually has varied between 105 and 130. The average for the last 5 years works out at 119'3. Mr. E. E. Cox, the Chief Conservator of Forests is of opinion that the stoppage of a general reward has had little apparent effect on the number of tigers killed. Conditions in the Central Provinces have considerably changed since Forsyth's days when conditions were somewhat parallel with what now obtains in the Sundarbans, and when it was the custom of the Forest Officers in the Betul District to spare a few weeks every year in the height of the hot season 'for the purpose of making an impression on the numerous tigers which at that time rendered working in the forests and carrying timbers so dreaded and consequently so costly to Government'. Between 500 and 600 human beings and an incalculable number of cattle were killed by wild beasts in the Central Provinces every year. Forsyth was of opinion that the heavy rewards offered for the killing of tigers and other dangerous animals contributed to their more rapid destruction: though he admitted that he had no statistics of the number killed during the years when no rewards were paid. In 1865 rewards were claimed in the Central Provinces for the killing of 1,863 tigers, panthers, bears and wolves, and in 1867 the number rose to 2,414.

In the Province of Orissa the total area of demarcated forests is limited to 2,118 square miles in which 19 tigers were shot. The average number for the last 3 years is 16. In controlled forests in Central India, covering the major Indian States and the British Province, the total number of tigers killed in 1937-1938 was 213.

Bombay Province and Hyderabad.

In the Bombay Province there are 10,819 square miles of demarcated forests: in much of this area tigers are not usually found or have long since been exterminated, Khandesh and Kanara being now the main strongholds. The total number killed within the Province in 1937-1938 was 34. The average number for the last 6 years was 37. Except in the case of man-eaters, no rewards are given for killing tigers.

The total area of reserved forest in Nizam's Dominions covers roughly 545 square miles. The total number of tigers killed within this area was 17. No rewards are paid within the State. The total number of tigers killed in controlled forests in the Bombay Province and Hyderabad State in 1937-1938 was 51.

Southern India.

The total area of demarcated forests in the Province of Madras in 1937-1938 was 15,124 square miles. Of this total 15,124 sq. miles represent reserved forests under the control of the Forest Department and the remainder reserved forests under the control of Panchayats, and reserved lands. As in the Province of Bombay, tigers are no longer found or have been exterminated from a large part of this area. The total number of tigers reported killed in these forests in the year 1937-1938 amounts to 19. Fortunately, from this province, figures are also available for areas outside the control of the Forest Department, which during that year amounted in all to 51; 37 of which were accounted for in the forests of Malabar which apparently contains the largest number. But as stated previously, doubts have been cast upon the correctness of this figure. South Kanara comes next with 7. Shooting of tigers within the reserved forests of the Nilgiri division is controlled by the Nilgiri Game Association, which is perhaps the most successful organization of its kind in the whole of India. In 1936-1937 the total number of tigers shot in the Nilgiris was 8; and in 1937-1938, 5. No rewards are paid for the shooting of tigers in the Nilgiri areas. In the Madras Province, a maximum reward of Rs. 50 is paid in 4 districts and Rs. 30 in other districts.

In Mysore State, tigers are listed as a 'game animal' and a licence has to be obtained for shooting them. Shooting is however not permitted in Tiger Preserves or in the Game Sanctuaries. Areas where tigers are reported by the District Magistrate to be causing 'havoc' to human life or to cattle, are thrown open to free shooting for such periods as may be considered necessary. The approximate area of forests in Mysore State is 4,434 square miles. The number of tigers shot, within this area in 1937-1938 is 54.

In Travancore State there are a little over 360 square miles of reserved forests and the number of tigers reported shot within the last 11 years is 8.

The total number of tigers killed in reserved forests in the Province of Madras and in Mysore is 81, of which 54 were accounted for in Mysore State. If the areas outside reserved forests are

included, the total number reported killed in Southern India, i.e. Madras Province and Mysore, was 132.

Sex of tigers shot.

Details are available from a few provinces regarding the sex of the animals killed in the year 1937-1938:—

Assam	17 tigers	1 tigress
Bengal	40 „	11 tigresses
Behar	7 „	3 „
United Provinces	73 „	43 „
Bombay	23 „	11 „
Nilgiris	3 „	3 „

Out of the 195 animals shot in the Provinces of Northern India 137 were males and 58 females: the proportion of sexes working out roughly to 70 males to 30 females.

For the Bombay Province figures are available for the last 3 years: out of a total of 110 animals reported killed between the years 1936 and 1939, 72 were males and 38 females. The proportion of sexes for the 3 years working at is 65 : 34.

For Mysore State: out of 54 animals reported, killed, 50 were males and 4 females.

The figures everywhere reveal a great preponderance of males over females.

The data is interesting when brought into relation with a note published by Mr. R. C. Morris (*Jour. B.N.H.S.*, Vol. xxxiii, p. 972) in which he says that out of 16 tigers killed in the Coimbatore District in the last few years, 10 were tigresses and 6 were tigers. An excess of females over males is also shown in Mr. G. H. Marshall's note on tigers killed during 10 years (1927-1937) in the Naga Hills, Assam where out of a total of 59 animals, 27 were tigers and 32 tigresses.

Finally we have the data provided by the three censuses of tigers taken in the Game Range, Palamau Division, Bihar, by Mr. J. W. Nicholson, I.F.S., in 1934 and over the whole division by Mr. C. M. Chaudhri, Deputy Conservator of Forests, Bihar in 1936 and again in 1938. The data provided in all three censuses again shows a considerable preponderance of males over females. The tigers were enumerated as they came to drink at water holes. The time of the censuses was during the hot weather, and due precautions were taken to avoid error in the counting. Details of the system adopted and of the results will be found in Mr. Chaudhri's interesting paper (*Indian Forester*, Sept. 1938, p. 612). The results of the three Censuses may be tabulated as follows:—

Game Range, Palamau.

<i>Year</i>		<i>Total enumerated</i>	<i>Males</i>	<i>Females</i>
1934	...	32	22	10
1936	...	28	17	11
1938	...	18	12	6

The reduction in the total number counted in the year 1938 as compared with 1936 is ascribed to a fire which took place in one of the forest blocks, and to the block being thrown open to working, resulting in a migration of tigers into adjoining Zemindari jungle.

The data for the two censuses covering the whole division are as follows :—

<i>Year</i>		<i>Total enumerated</i>	<i>Males</i>	<i>Females</i>
1936	...	45	27	18
1938	...	29	19	10

Both Mr. Nicholson and Mr. Chaudhri comment on the low proportion of females to males.

It is difficult to draw conclusions from the data provided, but if the records available of tigers shot by licence-holders in reserved forests in British India are taken as an indication, then the forests of the United Provinces, in relation to their extent, contain easily the largest number; next comes the Central Provinces, then Bombay, and finally Madras where the number dwindles considerably except in the rain forests of the Malabar Coast and Mysore.

Commenting on the depletion of tigers in the forests of Southern India Mr. R. C. Morris writes—

‘The chief cause of the disappearance of tigers in South India is, however, not in their destruction, but the killing-off of their natural source of food supply. There is not the slightest doubt to my mind that the wholesale slaughter of sambhur and chital by poachers and village licensees has affected the breeding of tiger detrimentally. In Sanderson’s time the Chamarajanagar taluk of the Mysore District held a number of tigers; there are now none, or only an occasional wanderer. This is entirely due to the extermination of the deer in the Chamarajanagar forests, including the Chamarajanagar Game Sanctuary. As the deer were shot out the tiger left, and their numbers in the adjoining taluks of the Coimbatore District have decreased with the diminution of deer, continually harassed and shot as they are increasingly. The reason for the satisfactory position of tiger on the Nilgiris, and in the area under the control of the Nilgiri Game Association, is due to the fact that sambhur and chital abound in these parts. A poacher nowadays, sitting up over a water-hole, has no hesitation in shooting a tiger, should it turn up instead of a chital or sambhur. I do think however that a limit of a tiger per gun, per district, per annum should be imposed, as is now the rule in Mysore’.

The abolition of rewards for tiger has presumably little effect on the numbers destroyed as a dead tiger (like the Rhino) has a market price—the skin—the meat and the fat, are all in great demand, as also the clavicles, teeth and claws, all of which bring profit to the poacher. The rewards offer little or no incentive to sportsmen.

Secondly the data available suggests a predominance of males. Finally the payment or non-payment of rewards appears to have

had little effect on the numbers killed. Thirdly stoppage of the rewards in the United Provinces, Central Provinces, and elsewhere has not been followed by any appreciable decline in the number of tigers killed.

Burma.

Reserved forests in Burma cover an incomparably greater area than in any province in India. There are 31,374 sq. miles of reserved forests. Throughout these forests tiger shooting is controlled under an 'unprotected game' licence which costs Rs. 10. In addition there are 'unclassified' forests covering 94,468 square miles. Here tigers may be shot without restriction. Much of this unclassified forest however contains no tiger. While in the reserved forests, according to the Game Warden, tigers are 'far more numerous than is generally appreciated'.

As regards Burma, Mr. F. H. Mustill, the Game Warden has favoured us with a statement showing the number of tigers reported shot during the last 10 years. In a period of 4 years, between 1928-1932, 1,382 tigers were reported shot: the average number per year being 365. The maximum number reported killed in any one year within this period being 492, and the minimum 201. The subsequent 6 years show an abrupt decrease in the number of tigers reported killed: the average dropping to 94 per annum, the figures for 1937-1938 being only 67, and the maximum being 182 and the minimum, 57. Mr. Mustill states that 'from September 1931 a general reward of Rs. 20 for each tiger shot was discontinued. Hence the figures from that date show considerable diminution and are in all probability unreliable'.

Mr. Mustill adds, 'My contention that the discontinuance of a general reward for shooting of Carnivora (which includes bear, leopard and wild dog, in addition to tiger) brought about considerable diminution in the number of tigers shot applies also to the other Carnivora:—

<i>Year</i>		<i>Leopard</i>	<i>Bear</i>	<i>Wild Dog</i>
1928-29	...	1,242	1,119	219
1929-30	...	829	1,018	210
1930-31	...	478	327	121
1931-32	...	615	307	107
1932-33	...	479	366	79
1933-34	...	539	408	87
1934-35	...	205	146	47
1935-36	...	30	30	8
1936-37	...	51	101	53
1937-38	...	38	209	66

The figures for Carnivora shot during 1935-36 had shrunk to such an extent that Divisional Forest Officers were specially asked to see that steps were taken to report all deaths of Carnivora. As seen from the above table some improvement in results has occurred but the figures nowadays in no way approach those for years previous to 1931. That this diminution in shooting of Carnivora is

due in no way to diminution in stock is plainly evident from the numbers of tiger and wild dog especially which are to be found in the Burma Forests today.' The position appears to be at variance with what obtains in India where the discontinuance of payment of rewards in various provinces, as shown by the figures available, has had no appreciable effect on the number of tigers killed.

BOMBAY NATURAL HISTORY SOCIETY,
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S. H. PRATER,
Curator.

II.—THE 'SAMBUR' CALL OF THE TIGER AND ITS EXPLANATION.

I hope the following will be of interest.

Early in April 1940 I was shooting with the Maharaj Kumar of Vizianagram in the jungles of the Maharani of Khairigarh in Lakhimpur Kheri, Oudh, and in the Nepal Tarai.

On the 6th I took my seat in a comfortable machan at about 5 p.m. in a thick and secluded part of the jungles on the Nepal border. Behind me was a small though thick tree and ringal clump and on the other sides was a sea of *narkul* and *ratwa* grass ranging from 2 to 20 feet in height. My object was not to shoot but watch wildlife and use my Cine-Kodak to the best advantage. At about 5-20 p.m. a tiger and a tigress came out of the *ratwa* grass into a clearing in front of me and about 150 yards away. At first they sat down to survey the country and then they started to gambol like a couple of overgrown kittens.

I was directly in their path and they would certainly have come past me, and given me a magnificent picture, when I saw the tigress stiffen her limbs and look in my direction a little to one side and towards the tree jungle. I felt certain she had not winded me. On looking back I found that one of my two look-out men, who had been placed in an improvised machan, was trying to scale another tree. I was naturally annoyed but could do nothing. However these proceedings were of considerable interest as by this time the tiger too was all attention and I heard and saw him utter the much-discussed 'sambar' call. From the way the tigers stared I was convinced that they had not made out what they had seen and, as they were uncertain whether it was friend or foe, they uttered this cry. Their expressions and attitude were a picture of suspicion mixed with a certain amount of alarm, and it struck me that the cry was also a cry of warning, for the tiger on uttering it promptly looked back at his mate who was a little behind him. After staring intently for another minute the pair turned round and disappeared from view.

In connection with this call I should like to narrate another incident which I experienced when shooting in the East Fen Block of the Mandla district, C. P., a few years ago. In a secluded part of thick jungle was a small pool very much used by wild animals. On three sides was thick jungle and on the fourth was a ridge about 4 feet high with rank grass and shrubbery, and beyond this